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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,057	01/07/2002	Manfred Baldauf	GR 99 P 8088	4485
24131	7590	11/24/2004	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,057

Applicant(s)

BALDAUF ET AL.

Examiner

Monique M Wills

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statements filed January 7, 2002 has/have been received and complies with the provisions of 37 CFR 1 .97, 1.98 and MPEP § 609.

Foreign Priority Documents

The German foreign priority document(s) 199 30 877.2, filed July 5, 1999 and 199 62 681.2 filed December 23, 1999 submitted under 35 U.S.C. § 119 (a) - (d), has/have been received and placed of record in the file.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-8, drawn to a fuel cell installation, classified in class 429, subclass 22.
- II. Claims 9-16, drawn to a method of operating a fuel cell installation, classified in class 429, subclass 13.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the

process as claimed can be practiced by another materially different apparatus, such as a plurality of electrochemical cells.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Greg Mayback on November 17, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Einhart et al. U.S. Patent 6,531,876.

Einhart teaches a fuel cell installation, comprising: a fuel cell stack 6 (Fig. 1 & col. 4, lines 1-6) including individual fuel cell units (col. 4, lines 8-11) electrically connected in series (col. 4, lines 8-11). Each individual fuel cell unit includes a contact unit 1 arranged in

series for voltage measurement/control (col. 4, lines 34-38), forming separate subsystems. See Figure 1. The separate subsystems are not identical, in that each fuel cell unit may have a different thickness (col. 6, lines 10-15). Therefore, the instant claim is anticipated by Einhart.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Barton U.S.

Patent 6,724,194.

In re claim 1, Barton teaches a fuel cell installation, comprising a fuel cell stack 1 including individual fuel cell units electrically connected in series (Fig. 1 & col. 5, lines 5-15). Each individual fuel cell unit includes a voltage-monitoring unit for voltage measurement/control, forming separate subsystems. See Figure 1 and column 5, lines 5-15. The separate subsystems are not identical, in that each fuel cell unit may have a different voltage output (col. 6, lines 50-60).

With respect to claim 2, the subsystems may be electrically connected in parallel (col. 1, lines 60-65). As to claim 3, the subsystems include a polymer electrolyte membrane fuel cell (col. 5, lines 5-15). With respect to claim 4, the fuel cell stack includes a low-voltage unit (col. 6, lines 50-60). Therefore, the instant claims are anticipated by Barton.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Einhart et al.
U.S. Patent 6,531,876.

Einhart teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove.

The reference is silent to connecting the subsystems in parallel.

However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ a parallel configuration of fuel cell units of Einhart, since it has been held that rearranging parts of an invention involves only routing skill in the art. In re Japikse, 86 USPQ 70. Furthermore, the skilled artisan recognizes that parallel combinations deliver higher current from fuel cell stacks.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. U.S. Patent 6,724,194 in view of Tillmetz et al. U.S. Patent 6,410,175.

Barton teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to a PEM starter unit.

Tillmetz teaches that it is conventional to employ PEM units as starter cells because starter cells provide enough output power to heat the reforming, heat the second portion of the fuel cells, and/or powering a peripheral subsystem (col. 4, lines 15-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the a PEM starter unit of Tillmetz in the fuel cell of battery Barton, in order to provide enough output power to heat the reforming, heat the second portion of the fuel cells, and/or powering a peripheral subsystem as taught by Tillmetz (col. 4, lines 15-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 & 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Einhart et al. U.S. Patent 6,531,876 in view of Tillmetz et al. U.S. Patent 6,410,175.

Einhart teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to a PEM starter unit.

Tillmetz teaches that it is conventional to employ PEM units as starter cells because starter cells may provide enough output power to heat the reforming, heat the second portion of the fuel cells, and/or powering a peripheral subsystem (col. 4, lines 15-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the a PEM starter unit of Tillmetz in the fuel cell of battery Einhart, in order to provide enough output power to heat the reforming, heat the second portion of the fuel cells, and/or powering a peripheral subsystem as taught by Tillmetz (col. 4, lines 15-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

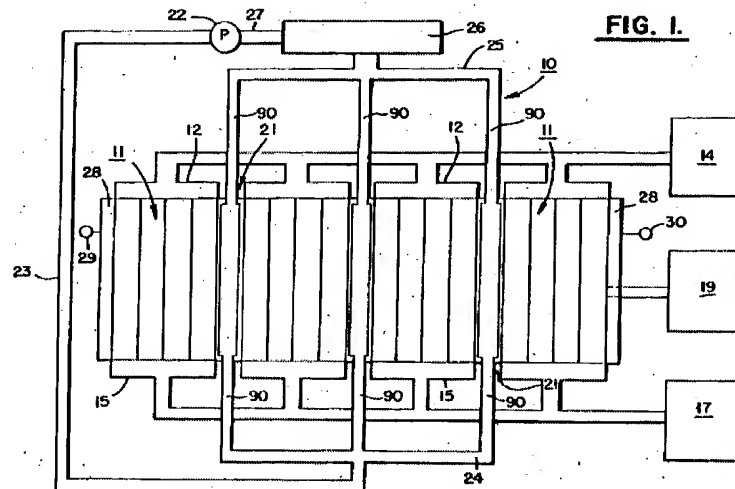
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Einhart et al. U.S. Patent 6,531,876 in view of Wittel U.S. Patent 4,583,583.

Einhart teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to at least two of the subsystems having respective cooling circuits, configured to be connected by series or parallel.

However, Wittel teaches that it is conventional to employ subsystems having respective cooling circuits in series/parallel as illustrated in Figure 1:



in order to maximize heat transfer from the fuel cell stack to the coolant without undue manufacturing and assembly tolerances and to avoid shunt currents without the need for additional electrical isolation form adjacent cells of the fuel cell stack. See column 3, lines 5-25.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the cooling circuits of Wittel in the fuel cell stack of Einhart, in order to maximize heat transfer from the fuel cell stack to the coolant without undue manufacturing and assembly tolerances and to avoid shunt currents without the need for additional electrical isolation form adjacent cells of the fuel cell stack.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

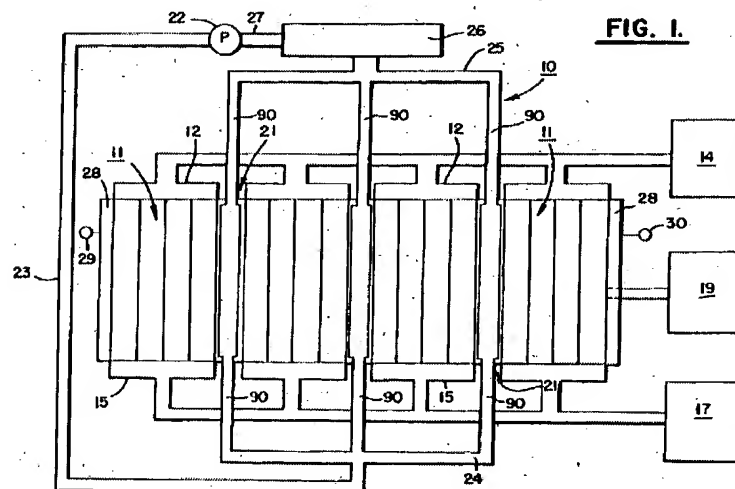
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. U.S. Patent 6,724,194 in view of Wittel U.S. Patent 4,583,583.

Barton teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to at least two of the subsystems having respective cooling circuits, configured to be connected by series or parallel.

However, Wittel teaches that it is conventional to employ subsystems having respective cooling circuits in series/parallel illustrated as in Figure 1:



in order to maximize heat transfer from the fuel cell stack to the coolant without undue manufacturing and assembly tolerances and to avoid shunt currents without the need for additional electrical isolation form adjacent cells of the fuel cell stack. See column 3, lines 5-25.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the cooling circuits of Wittel in the fuel cell stack of Barton, in order to maximize heat transfer from the fuel cell stack to the coolant without undue manufacturing and assembly tolerances and to avoid shunt currents without the need for additional electrical isolation form adjacent cells of the fuel cell stack.

Claim Rejections ~ 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. U.S. Patent 6,724,194 in view of Fekete U.S. Patent 4,962,462.

Barton teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to the fuel cell stack being connected to a battery.

Fekete teaches that it is conventional to employ batteries as secondary energy sources so that the power output of the fuel cell stack does not exceed a maximum designed power output (col. 2, lines 50-60), and to provide maximum efficiency by allowing the fuel cell stack to operate close to its average rated power output for all load demand conditions (col. 3, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the battery of Fekete in the fuel cell system of Barton, in order to provide maximum efficiency by allowing the fuel cell stack to operate close to its average rated power output for all load demand conditions and ensure that the fuel cell stack does not exceed a maximum designed power output.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Einhart et al. U.S. Patent 6,531,876 in view of Fekete U.S. Patent 4,962,462.

Einhart teaches a fuel cell installation as described in the 35 U.S.C. §102(e) described hereinabove, including a fuel cell stack comprising individual polymer electrolyte membrane (PEM) fuel cell units.

The reference is silent to the fuel cell stack being connected to a battery.

Fekete teaches that it is conventional to employ batteries as secondary energy sources so that the power output of the fuel cell stack does not exceed a maximum designed power output (col. 2, lines 50-60), and to provide maximum efficiency by allowing the fuel cell stack to operate close to its average rated power output for all load demand conditions (col. 3, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the battery of Fekete in the fuel cell system of Einhart, in order to provide maximum efficiency by allowing the fuel cell stack to operate close to its average rated power output for all load demand conditions and ensure that the fuel cell stack does not exceed a maximum designed power output.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

11/20/04

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Michael Barr", is written over the printed name and title.